



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/540,158	01/23/2006	Hiroyuki Makino	2830-0192PUS1	6618

2292 7590 07/31/2008  
BIRCH STEWART KOLASCH & BIRCH  
PO BOX 747  
FALLS CHURCH, VA 22040-0747

EXAMINER
----------

BAYOU, AMENE SETEGNE

ART UNIT	PAPER NUMBER
----------	--------------

3746

NOTIFICATION DATE	DELIVERY MODE
-------------------	---------------

07/31/2008

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/540,158	<b>Applicant(s)</b> MAKINO ET AL.	
	<b>Examiner</b> AMENE S. BAYOU	<b>Art Unit</b> 3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 23 January 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>06/21/2005</u> .  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that forms the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

((b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1 ,2 are rejected under 35 U.S.C. 102(b) as being unpatentable over Kline (US patent number 4426914).

3. In re claim 1 Kline '914 discloses the claimed invention including:

- A rotary fluid machine (10) ,in figure 1,in which opposite ends of a rotor (19) are rotatably supported in a casing (11,12,13) via a first bearing (15) and a second bearing (16), and energy conversion means for interconverting pressure energy (column 4,lines 28-30 and column 8,line 36) of a working medium and mechanical energy of the rotating rotor (19) is provided in the rotor (19), characterized in that among the first bearing (15) and the second bearing (16), the axial load can be supported by only the first bearing (15).

4. In re claim 2 Kline '914 discloses the claimed invention including:

- The rotary fluid machine (10) is an expander, and the energy conversion means is an axial piston cylinder group (41), in figure 1 and column 4, lines 28-30 and column 8, line 36.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 3 -6 are rejected under 35 U.S.C 103(a) as being unpatentable over Kline '914 in view of Makino et al (US patent number 6959638 with equivalent International publication number WO 02/070865) further in view Gradu (US patent number 6293704).

7. In re claim 3 Kline '914 discloses the claimed invention except:

- The rotary fluid machine provided with a rotary valve for supplying and discharging the working medium to and from the rotor ,the coefficient of thermal expansion of the rotor is set so as to be substantially the same as the coefficient of thermal expansion of the first bearing ,the coefficient of thermal expansion of the casing is set so as to be larger than the coefficient of thermal expansion of the rotor and the coefficient of thermal expansion of the first bearing the, first bearing is supported in the casing via a bearing holder and the coefficient of thermal expansion of the bearing holder is set so as to be substantially the same as the coefficient of thermal expansion of the rotor and the coefficient of thermal expansion of the first bearing .

But Makino et al.'638 teaches a rotary fluid motor including:

- The rotary fluid machine, in figure 1, provided with a rotary valve (62) for supplying and discharging the working medium to and from the rotor (27), first bearing (31) is supported in the casing via a bearing holder (15).

And Gradu '704 teaches shaft mounting with enhanced stability including:

- The coefficient of thermal expansion of the casing is set so as to be larger than the coefficient of thermal expansion of the first bearing, in column 6, lines 34-38.

8. It would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the rotary fluid machine of Kline '914 by including rotary valve as taught by Makino et al.'638 in order to control the flow rate. Also it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the modified fluid machine of Kline '914 and Makino et al.'638 by selecting bearing and housing materials with different coefficient of expansion in order to avoid stress/cracking on the machine elements and also to achieve good alignment.

9. In re claim 4 Kline '914 in view of Makino et al.'638 further in view of Gradu '704 as applied to claim 3 discloses the claimed invention:

Kline '914 discloses:

- The rotary fluid machine (10), is an expander, and the energy conversion means is an axial piston cylinder group (41), operated by a swash plate (44), in figure 1 and column 4, lines 28-30 and column 8, line 36.

10. In re claim 5 Kline '914 in view of Makino et al.'638 further in view of Gradu '704 as applied to claim 4 discloses the claimed invention:

Kline '914 discloses:

- The swash plate (44) is supported in the casing (13) via a swash plate holder (45), and the coefficient of thermal expansion of the swash plate holder (45) is set so as to be substantially the same as the coefficient of thermal expansion of the bearing holder (13), in figure 2.

11. In re claim 6 Kline '914 in view of Makino et al.'638 further in view of Gradu '704 as applied to claim 4 discloses the claimed invention:

Kline '914 discloses:

- The swash plate holder (45) and the bearing holder (13) are formed from the same member, in figure 2. Please note that bearing holder (13) and swash plate holder (45) can be considered as unitary (formed from same member) since it has been held that forming in one piece an article which has formerly been formed in two pieces and put together involves only routine skill in the art. *Howard v. Detroit Stove Works*, 150 U.S. 164 (1993).

### **Conclusion**

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amene S. Bayou whose telephone number is 571-270-3214. The examiner can normally be reached on Monday-Thursday, 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on 571-272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Devon C Kramer/  
Supervisory Patent Examiner, Art  
Unit 3746